Ann. Natal Mus. Vol. 22(2) Pages 465–469 Pietermaritzburg November, 1975

A new Strepsipteron from Natal (Insecta: Halictophagidae)

by

E. F. Riek

(C.S.I.R.O., Division of Entomology, Canberra, Australia)

SYNOPSIS

Halictophagus irwini sp. nov. is described from both the female and the pharate adult male, obtained as parasites of *Dalbulus distans* Linnavuori (Hemiptera: Cicadellidae). A key is given to the five species of *Halictophagus* known from Africa.

INTRODUCTION

Five species of *Halictophagus* have been described from Africa but *zanzibarae* Bohart 1962, a parasite of Coreidae from Zanzibar, has been transferred to *Coriophagus*. It is a very distinct and large species. The female cephalothorax is markedly elongated, being about three times as long as wide, and the brood-passage opening is rounded. The male is less unusual, although the postscutellum is narrowed close to base, the scutellum rounded anteriorly and the apical segment of the palp markedly elongated. The antennal flabellae are compact. *H. cladoceras* (Jeannel 1913) was described from British East Africa, *H. calcaratus* (Pasteels 1958) from Pretoria, Transvaal, and two species, *pontifex* and *regina* (Fox 1967), from Uganda. Fox (1967) gave a key to four species all of which were recorded only from males but she did not include *zanzibarae* which at that time was still referred to *Halictophagus*. *Halictophagus pontifex* is a parasite of *Poophilus* spp. and other Aphrophoridae (Cercopoidea), and *H. regina* a parasite of '*Cicadella spectra* (Distant)'. Greathead (1968, 1970) described the females of *pontifex* and *regina* and gave information on the biology of *pontifex*. Carvalho (1974) gave a new host record for *pontifex*. Van Ryn-Tournel (1971) did not include the two species described by Fox in a list of Strepsiptera recorded from Africa. Kinzelbach (1971) included all four species in a world list.

The species *cladoceras* and *calcaratus* are similar in many characters. Both are unusual in having a small triangular prescutum and a transverse scutellum with parallel fore and hind margins. They apparently differ in the structure of the eyes. There are about 50 large facets in *cladoceras* and 20 or fewer small facets in *calcaratus* (*vide* Fox 1967: 41).

The species *pontifex* and *regina* resemble *zanzibarae* males in having compact antennal flabellae and a broad separation of the prescutum and scutellum, and non-excavated mid and hind tibiae. The two species *pontifex* and *regina* differ in venation, the shape of the postscutellum, the relative lengths of the antennal flabellae, and in terminalia.

A new species of very small size, a parasite of *Dalbulus distans*, is described from Karkloof, Natal. The species is known from females and a pharate male removed from its puparium and dissected from the pupal skin. The only characters of the adult male not discernible are the venation and details of the aedeagus. The species is separated from those previously described on its very small size, in addition to morphological differences. The female cephalothorax is only 0,2 mm long and the adult male 0,75 mm long.

Key to the African species of *Halictophagus*

Males

1. Prescutum triangular (and widely separated from the scutellum); scutellum transverse pentagonal...2
   Prescutum gradually tapering to a more or less transverse posterior margin; scutellum at least half as long as wide.................................3

2(1). 'Eye with about 50 large ocelli'*........................**cladoceras** (Jeannel)
   'Eye with 20 or fewer small ocelli'.......................**calcaratus** Pasteels

3(1). Antennal segments, especially 4, distinctly longer than wide; anterior margin of scutellum transverse; length 0,75 mm [Flabellae 3 and 4 distinctly shorter than 2 and 5].......................................**irwini** sp. nov.
   Antennal segments all short, flabellae compact; anterior margin of scutellum rounded; length between 2,0 and 2,5 mm.............................4

4(3). 'All antennal flabellae of about equal length; venation strong, with two distinct detached veins between R and M'..........................**pontifex** Fox
   'Flabellum of third antennal segment longest; venation below M extremely weak, single detached vein between R and M'.................**regina** Fox

Females

1. 'Brood-passage opening subrounded; a pigmented area on abdominal segments 2–4...**irwini** sp. nov.
   Brood-passage opening slit-like; without pigmented areas on abdominal segments...2

2(1). Cephalothorax without sclerotized basal collar; mandible with a large outwardly directed tooth overlapping a smaller tooth..................**pontifex** Fox
   Cephalothorax with a sclerotized basal collar; mandible with a single serrated tooth...**regina** Fox

Halictophagus irwini sp. nov.

Type. Holotype ♀ and 8 ♀♀ paratypes and paratype pharate male and 4 male puparia, in Natal Museum.

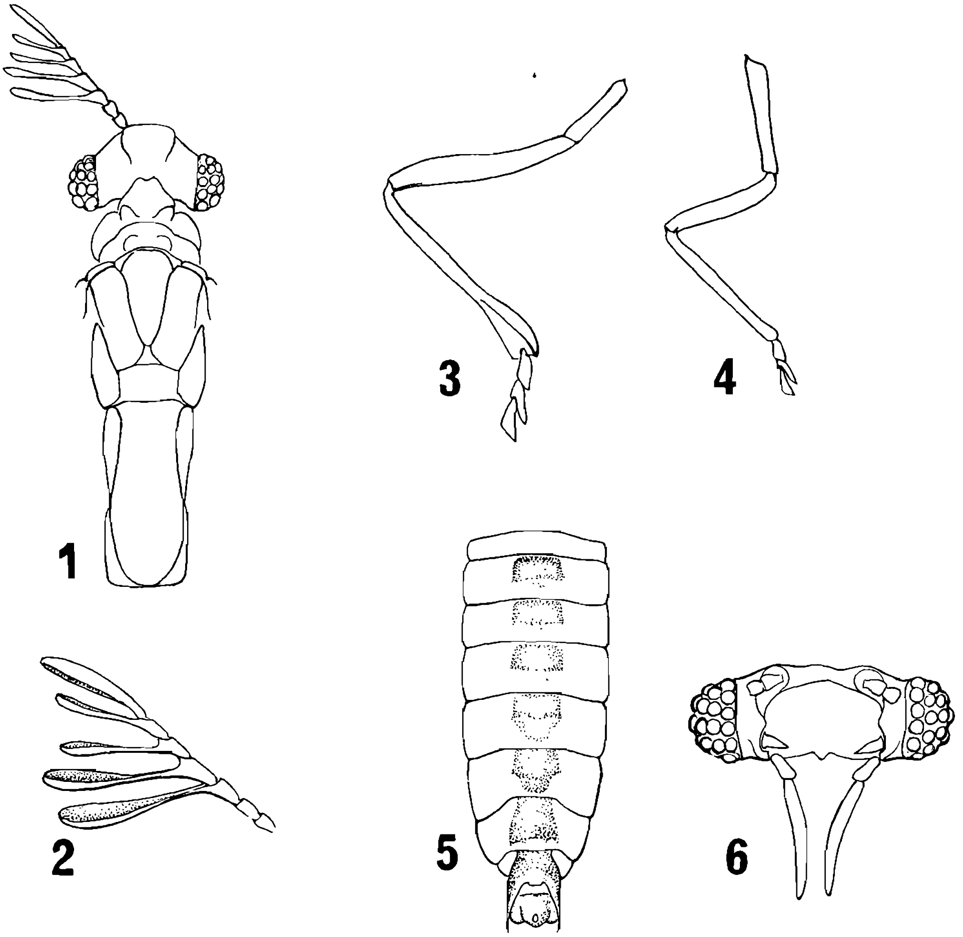
Type locality. Karkloof, Natal. (17 June 1974, M. Irwin, E. F. Riek and B. R. Stuckenberg).

Host. *Dalbulus distans* Linnavuori (Hemiptera: Cicadellidae).

Description. *Female*. Length of cephalothorax, to narrowed base, 0,2 mm; maximum width (at spiracles) 0,18 mm; width at brood-pouch 0,12 mm; length from labrum to posterior margin of pattern on abdominal segment 1 0,34 mm; length from labrum to posterior margin of pattern area on abdominal segments 2–4 0,56 to 0,60 mm. Cephalothorax almost black, except narrowly at narrowed base, and brood-passage opening. Brood-passage opening of virgin female covered by a thin membrane, white discally but slightly pigmented at margins. Pigmented area of first abdominal segment darker over middle and apical portions than at base. Pigmented area on abdominal

---

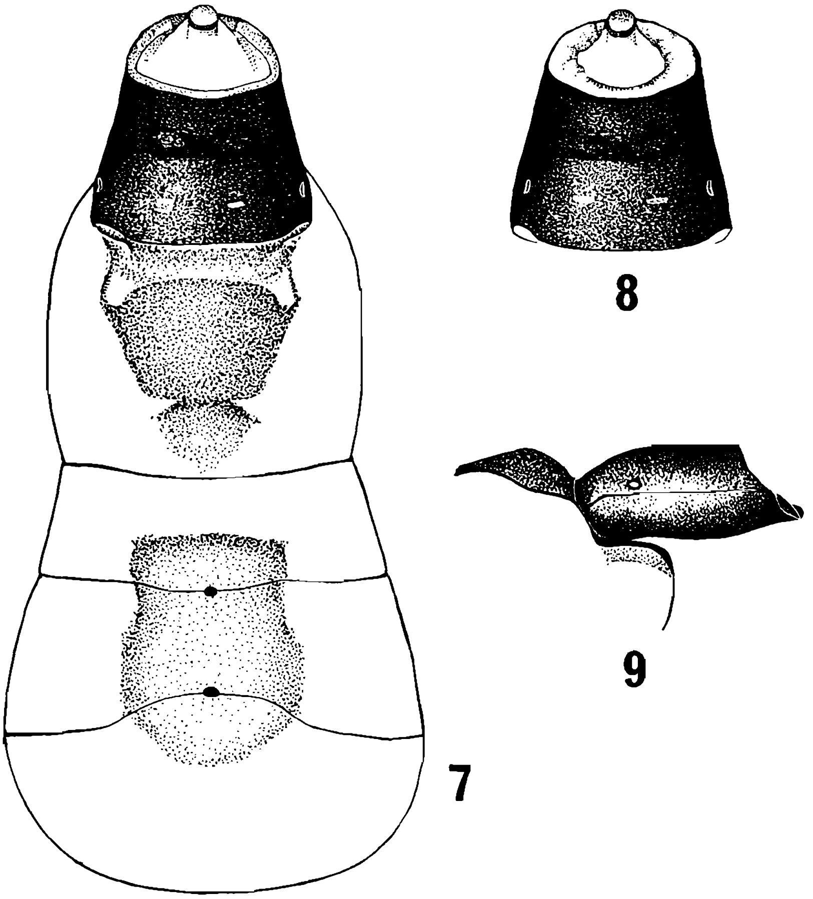
* Characters from Fox 1967.



Figs 1-6. *Halictophagus irwini* sp. n. Male: (1) head and thorax, dorsal; (2) antenna; (3) hind leg; (4) fore leg; (5) abdomen, ventral; (6) head, frontal, showing mandibles and maxillary palps.

segments 2–4 paler discally than at margins. Sclerotized plate of abdomen extending only to abdominal segment 4, slightly beyond the pigmented area. Brood-passage opening very large, subcircular, extending to the labium and mandibles. Oesophageal area defined for a short distance posterior to the labium, visible through the brood-passage opening. Ventral surface of thoracic region with a pair of pits, pits level with, but mesal to, the spiracles, and with a transverse groove about half-way from pits to brood-passage margin. Mandible minute, teeth not readily distinguishable. Abdomen with two genital openings.

Male. Length of pharate adult 0,75 mm. Antenna with funicle segments longer than wide, especially first and second (= 3rd and 4th antennal segments), less so third and fourth, so that the flabellae are distinctly separated. Flabellae 3 and 4 distinctly shorter than second flabellum and apical antennal segment. Mandible short, straight,



Figs 7–9. *Halictophagus irwini* sp. n. Female: (7) cephalothorax and pattern of abdominal segments, ventral; (8) cephalothorax, virgin; (9) cephalothorax, lateral, ventral surface uppermost.

pointed at apex. Terminal palpal segment very long, more than three times as long as basal segment, tapering to a rounded point. Eye with facets contiguous, facets much larger posteriorly than anteriorly, with about thirteen facets around the margin. Mesothorax with prescutum large, tapering gradually to a more or less transverse posterior margin. Parapsides separated at meson by prescutum and a small median scutal area; parapsides touching scutellum posteriorly. Scutellum with more or less transverse anterior margin. Postscutellum somewhat narrowed close to base, about as long as anterior portion of mesonotum. Legs long and thin. Fore coxa longer than femur. Middle and hind tibiae thin, but distinctly narrowed over basal portion. Abdominal sternites 2–9 with heavily sclerotized area at meson, area on sternite 9 largest, and strongly produced posteriorly at apex to a pair of very stout broadly based spines. Aedeagus apparently strongly hooked at apex, forwardly curved over basal portion.

Notes. The male has very distinctive sclerotized sternites. It is also distinguished by its small size and the somewhat separated flabellae of the antenna. In the structure of the dorsal thorax it resembles *pontifex* and *regina.* The female cephalothorax is distinguished by the subrounded brood-passage opening and the extensive pigmentation of the abdomen. In the rounded brood-passage opening it resembles the much larger *Coriophagus zanzibarae* but is readily distinguished by the much shorter cephalothoracic form.

The 13 parasites were obtained by the examination of 3 600 hosts. Parasites were obtained only from adult hosts. Almost 1 000 nymphal hosts were examined for exserted parasites but not dissected for larval parasites. There was only one parasite per host except that one (female) host also had a degenerate larva as well as a fully developed and exserted female parasite. Seven of the parasitized hosts were male and six female. The female parasites were exserted ventrally intersegmentally at the doublure of the tergites, and the male parasites dorsally towards one side: this is the usual condition of stylops in leaf-hoppers. The female parasites were exserted between segments 5 and 6 in female hosts and between segments 7 and 8, in one specimen 6 and 7, in male hosts. The male parasites were exserted between segments 4 and 5 or 5 and 6 in female hosts and between segments 5 and 6 in male hosts. There were about equal numbers of parasites exserted on the left and right sides of the body of the hosts.

ACKNOWLEDGEMENTS

I am most grateful to Mrs Sybil Monteith for the illustrations. It was a pleasure to work in the field with Mike Irwin and Brian Stuckenberg during my brief stay in Pietermaritzburg, Natal. Dr J. G. Theron kindly identified the Cicadellid host.

REFERENCES

BOHART, R. M., 1962. A new strepsipteron parasitic on Coreidae (Strepsiptera: Halictophagidae and Hemiptera: Coreidae) *Proc. ent. Soc. Washington* **64**: 91–94.

CARVALHO, E. L. DE, 1974. A new species of Strepsiptera from Kenya. *J. Ent.* **43**: 33–35.

FOX, J. W., 1967. Report on some Strepsiptera in the British Museum (Natural History), including new species of Halictophagidae and Elenchidae. *Proc. R. ent. Soc. Lond.* **(B) 36**: 41–49.

GREATHEAD, D. J., 1968. Further descriptions of *Halictophagus pontifex* Fox and *H. regina* Fox (Strepsiptera: Halictophagidae) from Uganda. *Proc. R. ent. Soc. Lond.* **(B) 37**: 91–97.

——— 1970. A study of the host relation of *Halictophagus pontifex* Fox (Strepsiptera), a parasite of Cercopidae (Hem., Aphrophorinae), in Uganda. *Bull. ent. Res.* **60**: 33–42.

JEANNEL, R., 1913. Insectes Strepsiptères. *In: Voyage de C. Allaud et R. Jeannel en Afrique Orientale* (1911–12). 8 pp. Paris.

KINZELBACH, R. K., 1971. Morphologische Befunde an Fächerflüglern und ihre phylogenetische Bedeutung (Insecta: Strepsiptera). *Zoologica* **41** (119): 256 pp.

PASTEELS, J. J., 1958. Some Strepsiptera from Pretoria. *J. ent. Soc. sth Africa* **21**: 296–299.

VAN RYN-TOURNEL, J., 1971. Description d'un Strepsiptère nouveau recueilli en République Démocratique du Congo, premier représentant de la famille des Mengeidae. *Rev. Zool. Bot. Afr.* **83**: 21–30.

Date received: 1 November, 1974